14", 16", and 18" Long Arm Radial Saws

(Models 33-400, 33-401, 33-402, 33-403, 33-410, 33-411, 33-412, 33-413, 33-420, 33-421, 33-422, 33-423)

INSTRUCTION MANUAL

PART NO. 424-03-651-0019 - 07-18-02

DELTA

To learn more about DELTA MACHINERY
visit our website at: **www.deltamachinery.com.**

For Parts, Service, Warranty or other Assistance,

please call 1-800-223-7278 (In Canada call 1-800-463-3582).

GENERAL SAFETY RULES

Woodworking can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result. Safety equipment such as guards, push sticks, hold-downs, featherboards, goggles, dust masks and hearing protection can reduce your potential for injury. But even the best guard won't make up for poor judgment, carelessness or inattention. Always use common sense and exercise caution in the workshop. If a procedure feels dangerous, don't try it. Figure out an alternative procedure that feels safer. **REMEMBER:** Your personal safety is your responsibility.

This machine was designed for certain applications only. Delta Machinery strongly recommends that this machine not be modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, **DO NOT** use the machine until you have first contacted Delta to determine if it can or should be performed on the product.

Technical Service Manager
Delta Machinery
4825 Highway 45 North
Jackson, TN 38305
(IN CANADA: 505 SOUTHGATE DRIVE, GUELPH, ONTARIO N1H 6M7)

WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

1. **FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE TOOL**. Learn the tool's application and limitations as well as the specific hazards peculiar to it.

2. **KEEP GUARDS IN PLACE** and in working order.

3. **ALWAYS WEAR EYE PROTECTION**. Wear safety glasses. Everyday eyeglasses only have impact resistant lenses; they are not safety glasses. Also use face or dust mask if cutting operation is dusty. These safety glasses must conform to ANSI Z87.1 requirements. **NOTE:** Approved glasses have Z87 printed or stamped on them.

4. **REMOVE ADJUSTING KEYS AND WRENCHES**. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it "on".

5. **KEEP WORK AREA CLEAN**. Cluttered areas and benches invite accidents.

6. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well-lighted.

7. **KEEP CHILDREN AND VISITORS AWAY**. All children and visitors should be kept a safe distance from work area.

8. **MAKE WORKSHOP CHILDPROOF** – with padlocks, master switches, or by removing starter keys.

9. **DON'T FORCE TOOL**. It will do the job better and be safer at the rate for which it was designed.

10. **USE RIGHT TOOL**. Don't force tool or attachment to do a job for which it was not designed.

11. **WEAR PROPER APPAREL**. No loose clothing, gloves, neckties, rings, bracelets, or other jewelry to get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.

12. **SECURE WORK**. Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.

13. **DON'T OVERREACH**. Keep proper footing and balance at all times.

14. **MAINTAIN TOOLS IN TOP CONDITION**. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.

15. **DISCONNECT TOOLS** before servicing and when changing accessories such as blades, bits, cutters, etc.

16. **USE RECOMMENDED ACCESSORIES**. The use of accessories and attachments not recommended by Delta may cause hazards or risk of injury to persons.

17. **REDUCE THE RISK OF UNINTENTIONAL STARTING**. Make sure switch is in "OFF" position before plugging in power cord. In the event of a power failure, move switch to the "OFF" position.

18. **NEVER STAND ON TOOL**. Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.

19. **CHECK DAMAGED PARTS**. Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function – check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.

20. **DIRECTION OF FEED**. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.

21. **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF**. Don't leave tool until it comes to a complete stop.

22. **STAY ALERT, WATCH WHAT YOU ARE DOING, AND USE COMMON SENSE WHEN OPERATING A POWER TOOL. DO NOT USE TOOL WHILE TIRED OR UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR MEDICATION.** A moment of inattention while operating power tools may result in serious personal injury.

23. **MAKE SURE TOOL IS DISCONNECTED FROM POWER SUPPLY** while motor is being mounted, connected or reconnected.

24. **THE DUST GENERATED** by certain woods and wood products can be injurious to your health. Always operate machinery in well ventilated areas and provide for proper dust removal. Use wood dust collection systems whenever possible.

25. **WARNING: SOME DUST CREATED BY POWER SANDING, SAWING, GRINDING, DRILLING, AND OTHER CONSTRUCTION ACTIVITIES** contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead-based paints,
- crystalline silica from bricks and cement and other masonry products, and
- arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.

ADDITIONAL SAFETY RULES FOR RADIAL ARM SAWS

WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

1. **DO NOT OPERATE THIS MACHINE UNTIL** it is **assembled** and **installed** according to the instructions.
2. **OBTAIN ADVICE from your supervisor, instructor, or another qualified person** if you are not familiar with the operation of this machine.
3. **FOLLOW ALL WIRING CODES** and recommended electrical connections.
4. **USE THE GUARDS WHENEVER POSSIBLE.** Check to see that they are in place, secured, and working correctly.
5. **ENSURE THAT END PLATES ARE SECURELY FASTENED TO TRACK ARM** prior to use.
6. **TIGHTEN ALL CLAMP HANDLES** prior to use except for the motor carriage clamp. Tighten this clamp only for ripping operations.
7. **AVOID KICKBACK BY:**
   A. keeping blade sharp and free of rust and pitch.
   B. keeping blade parallel to the fence when ripping.
   C. using anti-kickback fingers when ripping. Lower the guard on the infeed end and adjust the anti-kickback attachment properly.
   D. never ripping a workpiece that is twisted or warped, or does not have a straight edge to guide along the fence.
   E. never sawing a large workpiece that cannot be controlled.
   F. never sawing a workpiece with loose knots or other flaws.workpiece.
8. **REMOVE CUT-OFF PIECES AND SCRAPS** from the table before starting the saw. The vibration of the machine may cause them to move into the saw blade and be thrown out. After cutting, turn the machine off. When the blade has come to a complete stop, remove all debris.
9. **NEVER** perform “free-hand” operations.Use the fence to position and guide the workpiece.
10. **KEEP ARMS, HANDS, AND FINGERS** away from the blade.
11. **NEVER REACH** around the saw blade.
12. **NEVER PERFORM** a “crossed arm” operation.
13. **PROPERLY SUPPORT LONG OR WIDE** workpieces.
14. **NEVER START THE MACHINE** with the workpiece against the blade.
15. **FOLLOW ALL RIPPING WARNINGS** on machine. NEVER FEED THE WORKPIECE into the anti-kickback end of the machine. FEED WORKPIECE against blade rotation.
16. **USE PUSH STICK(S)** for ripping a narrow workpiece.
17. **RETURN THE CUTTERHEAD** to the full rear position behind the fence after each crosscut operation.
18. **NEVER PERFORM LAYOUT, ASSEMBLY,** or set-up work on the table/work area when the machine is running.
19. **TURN THE MACHINE “OFF” AND DISCONNECT THE MACHINE** from the power source before installing or removing accessories, before adjusting or changing set-ups, or when making repairs.
20. **TURN THE MACHINE “OFF”,** disconnect the machine from the power source, and clean the table/work area before leaving the machine. **LOCK THE SWITCH IN THE “OFF” POSITION** to prevent unauthorized use.
21. **ADDITIONAL INFORMATION** regarding the safe and proper operation of this tool is available from the Power Tool Institute, 1300 Summer Avenue, Cleveland, OH 44115-2851. Information is also available from the National Safety Council, 1121 Spring Lake Drive, Itasca, IL 60143-3201. Please refer to the American National Standards Institute ANSI 01.1 Safety Requirements for Woodworking Machines and the U.S. Department of Labor OSHA 1910.213 Regulations.

SAVE THESE INSTRUCTIONS.

Refer to them often

and use them to instruct others.

LONG ARM RADIAL SAW PARTS

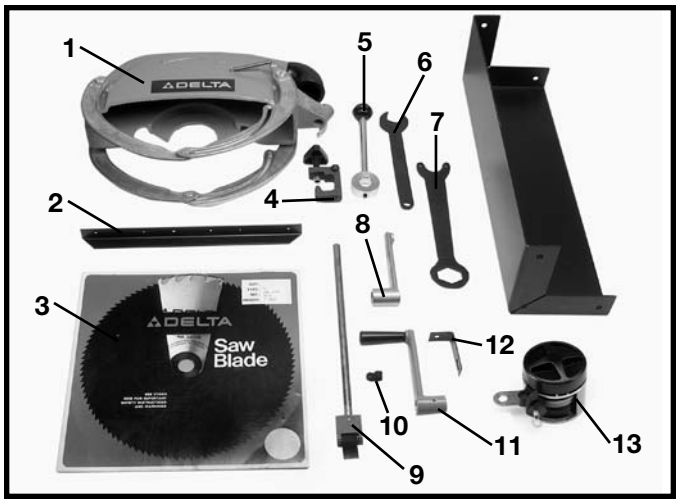

Fig. 1

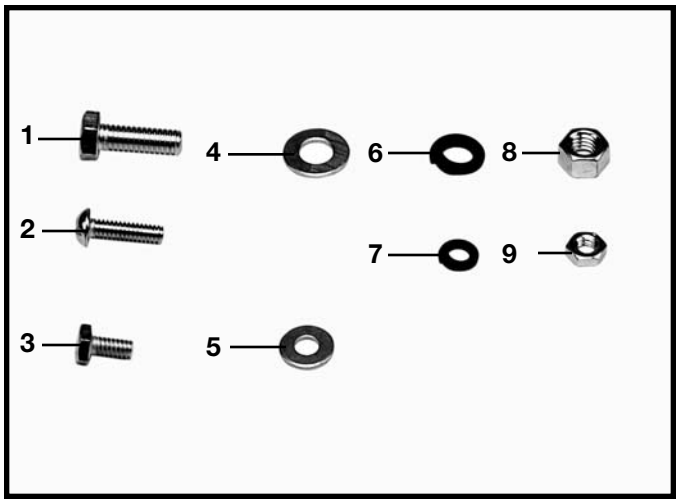

Fig. 1A

Fig. 1 Parts

1. Blade Guard (1)
2. Angle Support (3)
3. Blade (1)
4. Cross Stop (1)
5. Track-Arm Lock Handle (1)
6. 1/16" Open End Wrench (1)
7. Spanner Wrench with a 1-5/8" Box End (1)
8. Roller Head Wrench (1)
9. Anti-kickback Rod (1)
10. Cable Clamp (1)
11. Elevating Crank Handle (1)
12. Starter Box Bracket (1)
13. Cutterhead Return Spring (1)

Fig. 1A Hardware

1. 3/8-16x1" Hex Head Screw (12)
2. 1/4-20x7/8" Round Head Screw (15)
3. 1/4-20x1/2" Hex Head Screw (12)
4. 3/8" Flat Washer (12)
5. 9/32" Flat Washer (15)
6. 3/8" Lockwasher (12)
7. 1/4" Lockwasher (4)
8. 3/8-16 Hex Nut (12)
9. 1/4-20 Hex Nut (1)

ELECTRICAL INFORMATION

The Long Arm Radial Saws are not supplied with a power cord. They must be permanently connected to the building electrical system and grounded according to the National Electrical Code. These connections should be made by a qualified electrician. Since they are permanently connected to the building electrical system, extension cords cannot be used with the Long Arm Radial Saws.

GROUNDING INSTRUCTIONS

WARNING: THIS TOOL MUST BE GROUNDED WHILE IN USE TO PROTECT THE OPERATOR FROM ELECTRIC SHOCK.

1. Permanently connected tools:

This tool should be connected to a grounded metal permanent wiring system; or to a system having an equipment-grounding conductor.

OPERATING INSTRUCTIONS

FOREWORD

Deltas Long Arm Radial Saws have a totally enclosed, fan cooled motor, with electro-mechanical blade brake; 18", 16", or 14" blade guard with anti-kickback attachment; retractable leaf guard; cutterhead return attachment; cuttinghead clamp knob; adjustable crosscut stop and steel legs.

UNPACKING AND CLEANING

Carefully unpack the tool and all loose items from the shipping container(s). Remove the protective coating from all unpainted surfaces. This coating may be removed with a soft cloth moistened with kerosene (do not use acetone, gasoline or lacquer thinner for this purpose). After cleaning, cover the unpainted surfaces with a good quality household floor paste wax.

NOTICE: THE MANUAL COVER PHOTO ILLUSTRATES THE CURRENT PRODUCTION MODEL. ALL OTHER ILLUSTRATIONS ARE REPRESENTATIVE ONLY AND MAY NOT DEPICT THE ACTUAL COLOR, LABELING OR ACCESSORIES AND MAY BE INTENDED TO ILLUSTRATE TECHNIQUE ONLY.

SELECTING FLOOR SPACE

Before unpacking, determine exactly where you want to set up the machine. It is highly desirable to locate the machine against the wall where it will be out of the way and will actually facilitate material handling through the shop.

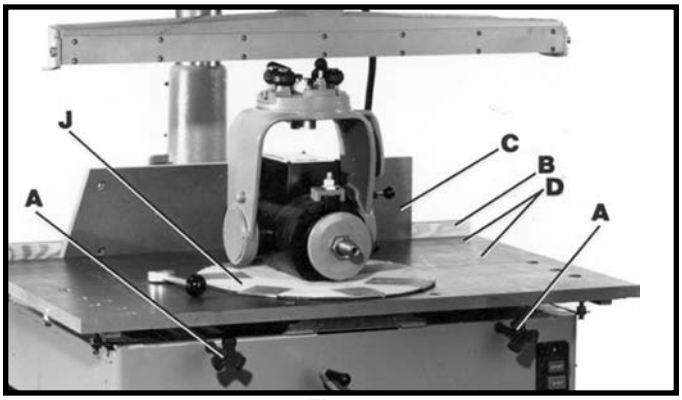

Fig. 2

UNPACKING AND ASSEMBLING LEGS TO BASE

IMPORTANT: Remove the carton from the machine. Remove bolts that fasten the machine to the skid.

IMPORTANT: To gain access to the four bolts that fasten the saw to the wooden shipping skid, loosen two table lock knobs (A) Fig. 2. Remove fence (B), angled front table board (C) and at least two table boards (D). Do not remove the packing material around the motor at this time.

Mechanically lift the machine using a forklift and lifting straps, and support the machine. Attach the four steel legs (E) Fig. 3, to each corner of the base using twelve 3/8-16x1" hex head screws (F), 3/8" flat washers (G), and 3/8" lockwashers (I) and 3/8-16 hex nuts (H). Remove the packing material from around the motor. The motor will be positioned on the table as shown in Fig. 2.

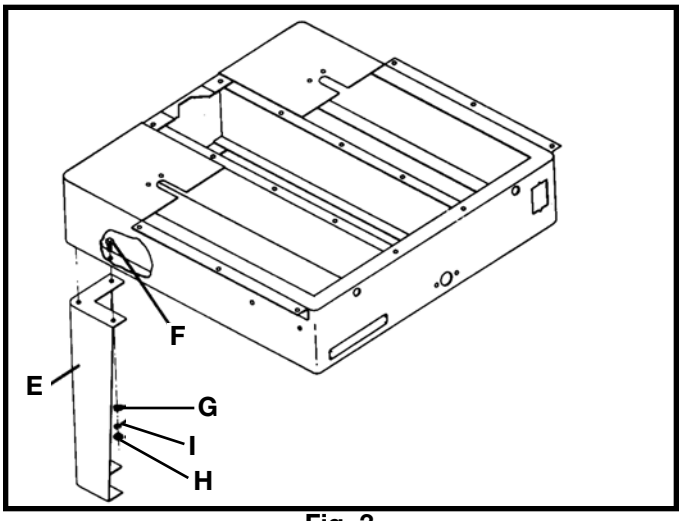

Fig. 3

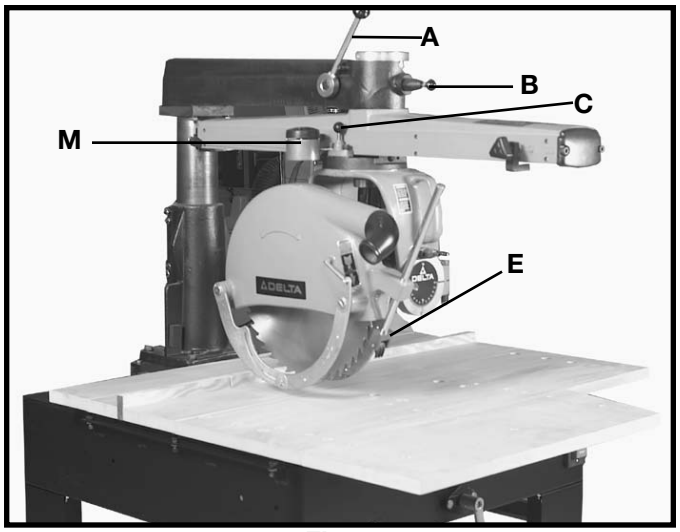

Fig. 4

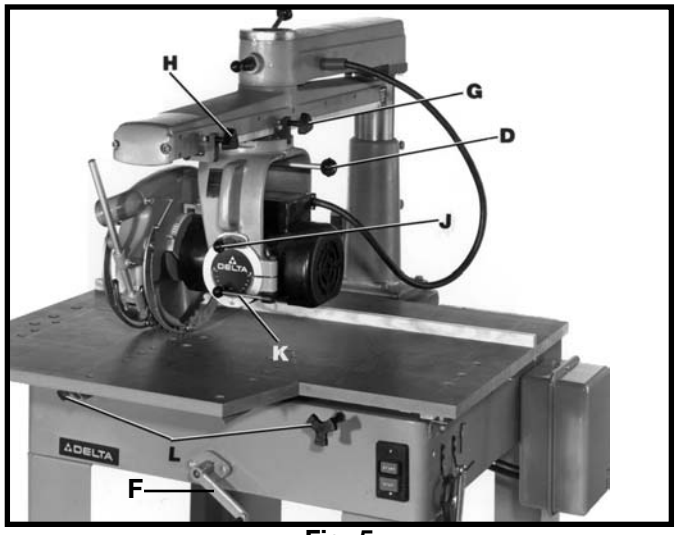

Fig. 5

OPERATING CONTROLS

The following is an explanation of the operating controls of the Delta 14", 16" and 18" Radial Arm Saws. All users will benefit by knowing how to set and operate the controls for all cutting operations. To avoid the possibility of damage to the machine and/or injury to the operator, all user's should become familiar with the operations and the controls before turning the machine "ON'.

A - TRACK-ARM CLAMP HANDLE Fig. 4. Controls swing of track-arm for all miter cutting operations. Locks track-arm at any angle for the full 180° rotation. To rotate track-arm, loosen clamp handle and rotate arm. The arm will stop at the 0° and 45° positions right and left. To move the arm past these points the track-arm index knob (B) must be pulled out.

B - TRACK-ARM INDEX KNOB Fig. 4. Locates 0° and 45° miter position, right and left, of the track-arm

C - YOKE INDEX KNOB Fig. 4. Locates each 90° position of the yoke for ripping or cross-cutting operations. When rotating the yoke, the yoke clamp handle (D) must first be loose.

D - YOKE CLAMP HANDLE Fig. 5. The yoke clamp handle must be loose when rotating the yoke to the rip or cross-cut position.

E - ANTI-KICKBACK DEVICE Fig. 4. When ripping, the yoke is positioned and clamped so that the blade is parallel to the fence. The rear of the blade guard is lowered until it almost touches the workpiece. The anti-kickback rod is then lowered so that the fingers catch and hold the workpiece. Never rip from the anti-kickback end of the blade guard.

F - ELEVATING CRANK HANDLE Fig. 5. Controls the depth of cut in all operations. Turning the crank handle raises or lowers the over-arm.

G - CUTTINGHEAD CLAMP KNOB Fig. 5. Locks cuttinghead at any position on the track-arm. When ripping the cutting clamp knob must be tight.

H - CROSS-CUT STOP Fig. 5. Prevents unnecessary travel of the cuttinghead on the track-arm. It is especially useful when performing repetitive operations. Clamp the stop to the side of the track-arm at a position which will stop the cuttinghead travel as soon as the blade cuts through the workpiece.

J - BEVEL INDEX KNOB Fig. 5. Locates 0° and 45° and 90° positions of the motor when bevel cutting. When tilting the motor for bevel cutting, the bevel clamp handle (K) must first be loose.

K - BEVEL CLAMP HANDLE Fig. 5. Controls tilt of motor for bevel cutting operations. Locks motor at any desired angle on the bevel scale.

L - TABLE CLAMP KNOBS. Fig 5. Allows the operator to quickly set the desired fence position.

M - CUTTINGHEAD RETURN ATTACHMENT Fig. 4. Automatically returns the cuttinghead to the rear of the track-arm after completion of the cut.

ASSEMBLY

ELEVATING CRANK HANDLE

Assemble elevating crank handle (A) Fig. 6, to rod in front of base using the roll pin (B).

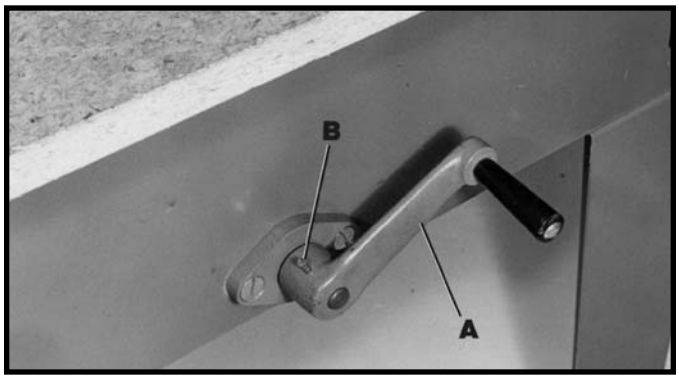

Fig. 6

TRACK-ARM LOCK

Assemble track-arm lock handle (A) to the overarm, as shown in Fig. 7, and tighten set screw (B). Lock handle (A) should be tight when in the position shown in Fig. 7, and loose when pulled forward and resting against stop (C).

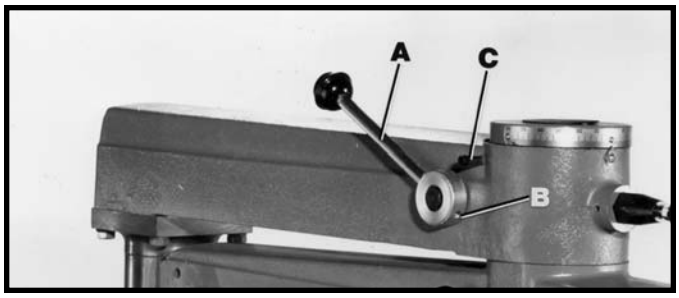

Fig. 7

CUTTINGHEAD AND CROSS-CUT STOP TO TRACK-ARM

1. Remove two screws (A) and end cap (B) from track-arm, Fig. 8.

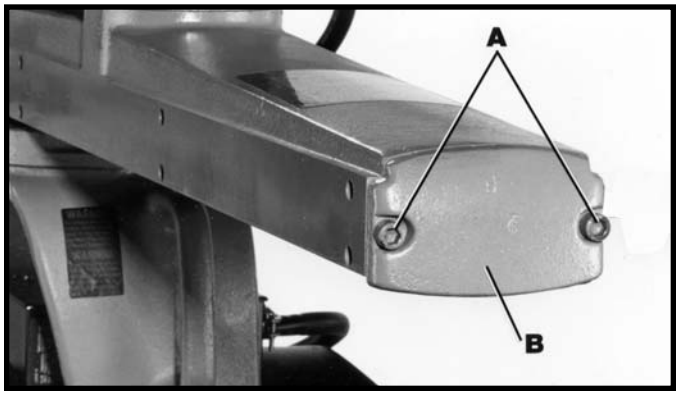

Fig. 8

2. Hold cuttinghead assembly (D) Fig. 9, with both hands and insert the ball bearings (E) into the track-arm, as shown. Push cuttinghead all the way onto track-arm and tighten clamp knob (F).

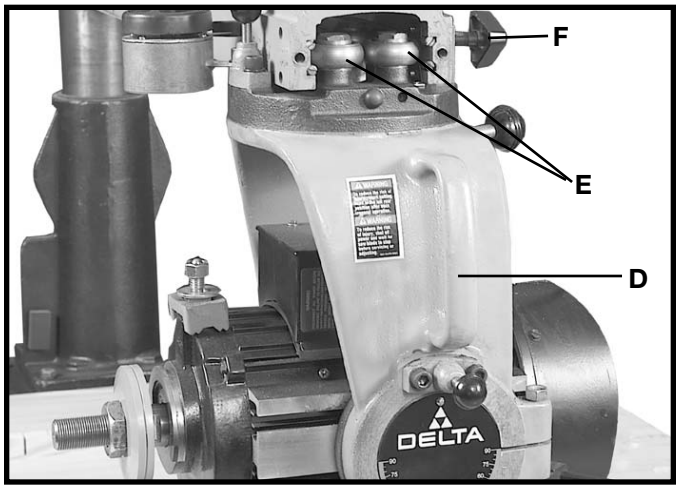

Fig. 9

3. Assemble cross-cut stop (C) to the track-arm as shown in Fig. 10.

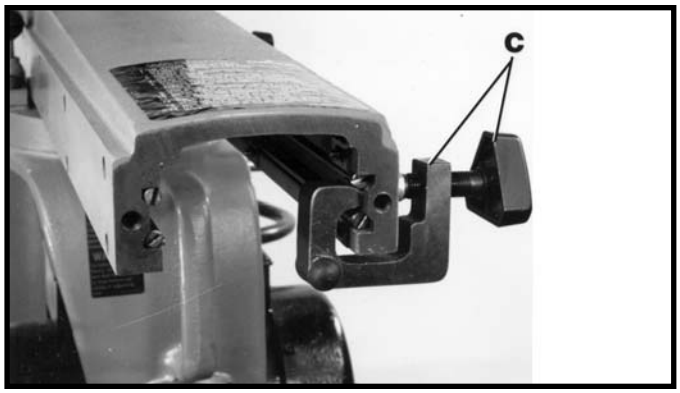

Fig. 10

4. Replace end cap (B) that was removed in **STEP 1,** as shown in Fig. 11.

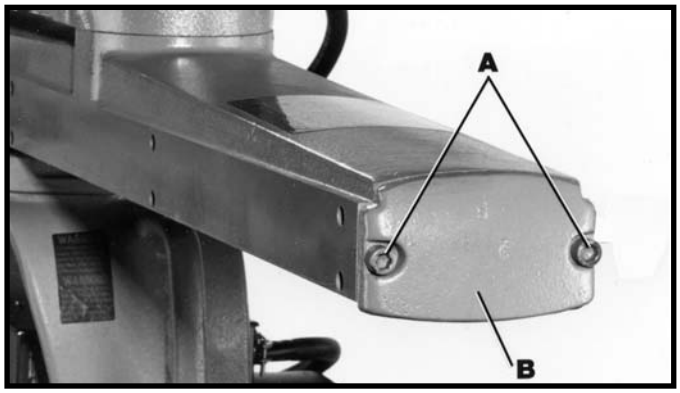

Fig. 11

STARTER BOX TO BASE

1. Assemble bracket (A) to the bottom of the right side of saw base, as shown in Fig. 12, using the 1/4-20x1/2" hex head screw (B), 1/4" lockwasher (D), and 1/4-20 nut (E).

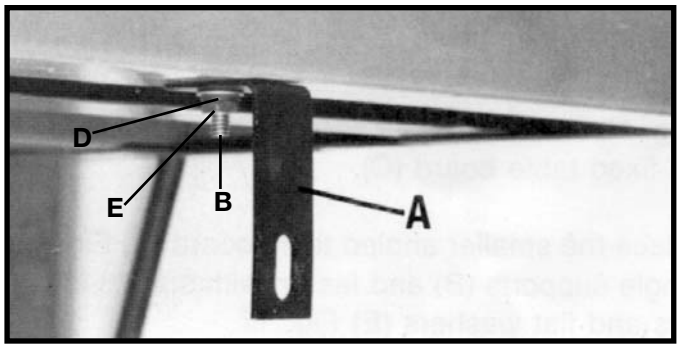

Fig. 12

2. Assemble the starter box (B) Fig. 13, to the right side of the base by inserting the three1/4-20x1/2" hex head screws (C) with 1/4" lock-washers, through the two holes in the base and the hole in the bracket and into the three 1/4-20 weld nuts in the back of the starter box. A cable clamp is supplied to attach the power cord to saw frame.

3. Fig. 14, illustrates the starter box assembled to the base.

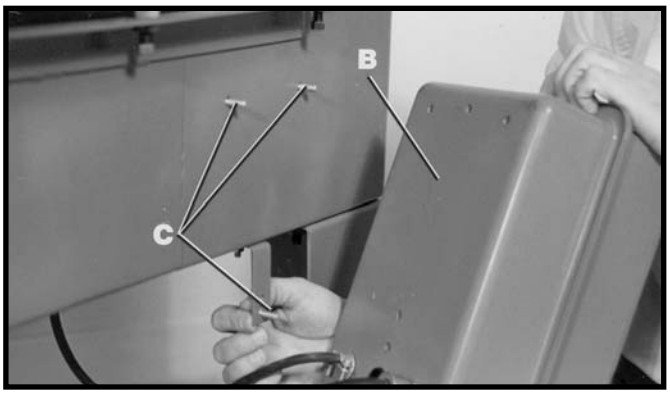

Fig. 13

Fig. 14

TABLE BOARDS AND FENCE

1. Assemble loose table boards and fence (A) Fig. 15, on the table brackets.

2. Assemble three angle supports (B) Fig. 15, to the fixed front table board (C) using nine 1/4-20x7/8" round head screws and 9/32" flat washers.

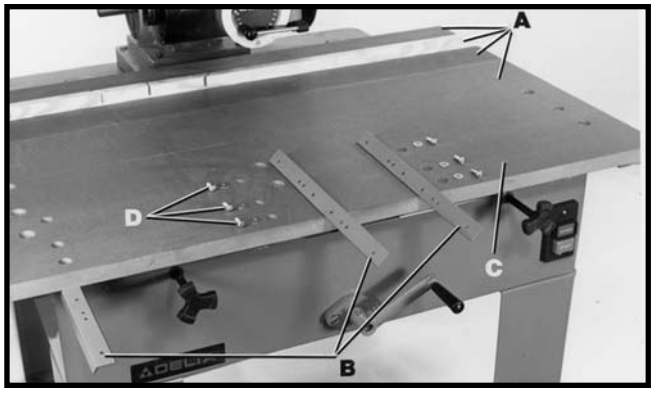

Fig. 15

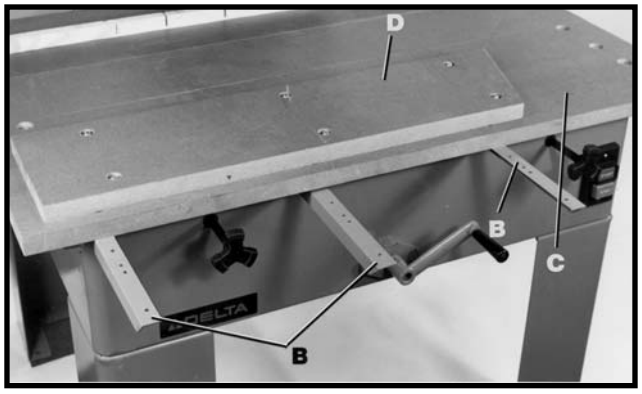

Fig. 16

3. Fig. 16, illustrates three angle supports (B) assembled to the fixed table board (C).

4. Place the smaller angled table board (D) Fig. 16, on the angle supports (B) and fasten with six 1/4-20x7/8" round head screws and 9/32" flat washers shown at locations (E) Fig. 17.

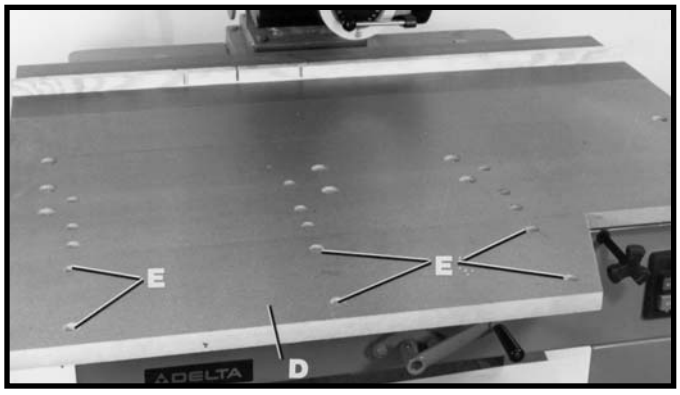

Fig. 17

ADJUSTING TABLE TOP PARALLEL TO TRACK-ARM

For accurate work the track-arm must be parallel to the table top at all points.

To check and adjust, proceed as follows:

1. Move the motor and cuttinghead assembly (A) to the vertical position shown in Fig. 18. Position saw arbor (B) Fig. 18, so it is approximately in the center of the front table board, as shown. Push track-arm clamp handle (C) Fig. 18, to the rear to secure track-arm and tighten cuttinghead clamp knob (G) Fig. 5.

Using the spanner wrench (E) Fig. 18, as a feeler gage, raise or lower track-arm by turning elevating handle (F) Fig. 19, until saw arbor (B) just touches wrench (E). **DO NOT RAISE OR LOWER TRACK-ARM ANY FURTHER UNTIL LEVELING ADJUSTMENT IS COMPLETED.**

2. Move cuttinghead (A) so that the saw arbor (B) Fig. 19, is at the left front table, as shown. Make sure track-arm clamp lever and cuttinghead lock knob are tight. Using the spanner wrench (E) Fig. 19, as a feeler gage, check to see if an adjustment is necessary. To lower the table, loosen nut (G) and tighten nut (H) Fig. 19. To raise the table, reverse this adjustment. Check table at points (J) and (K) and adjust if necessary. Check table on right side in the same manner.

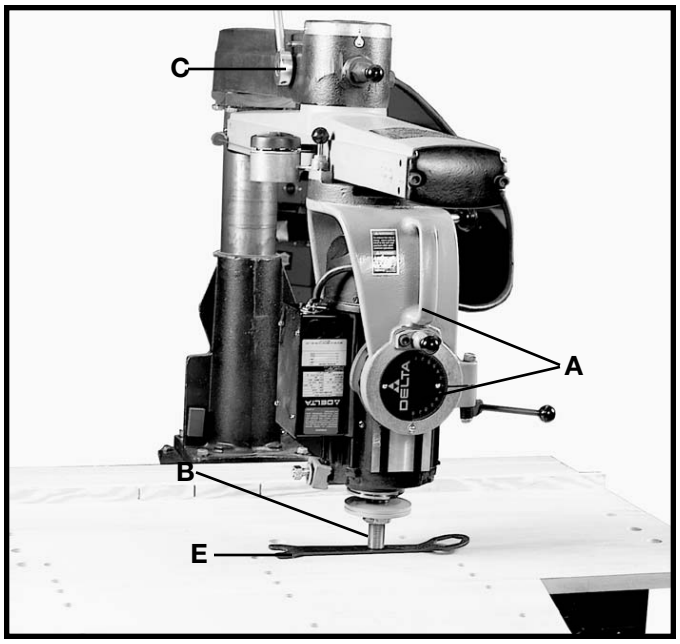

Fig. 18

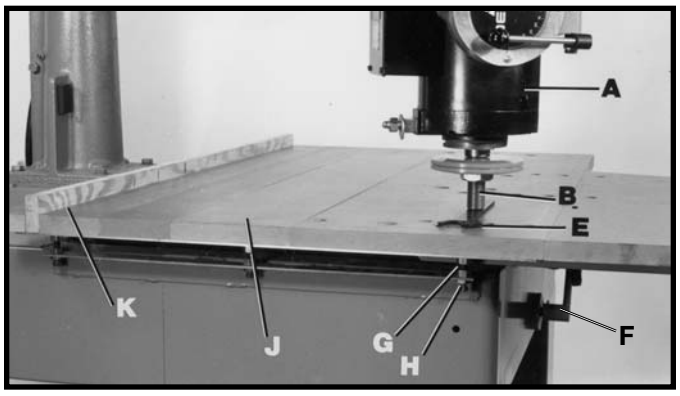

Fig. 19

BLADE GUARD AND ANTI-KICKBACK DEVICE

1. Loosen set screw (E) Fig. 22. Remove arbor nut (A) and outer blade flange (B).

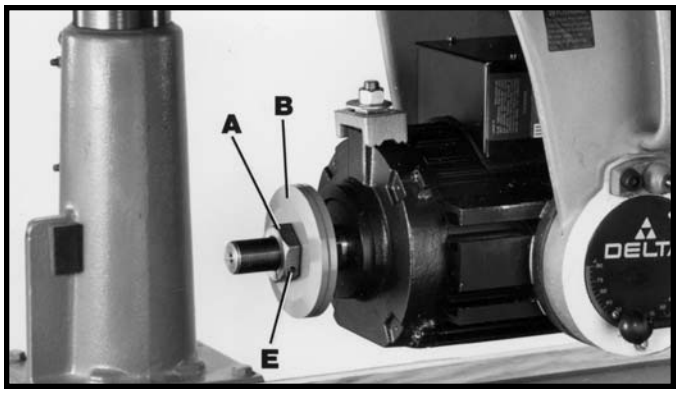

Fig. 22

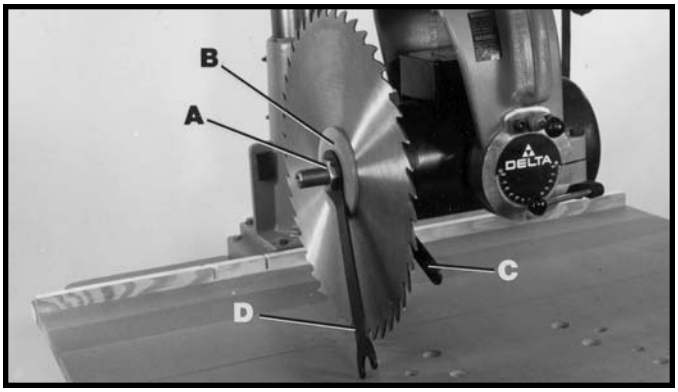

Fig. 23

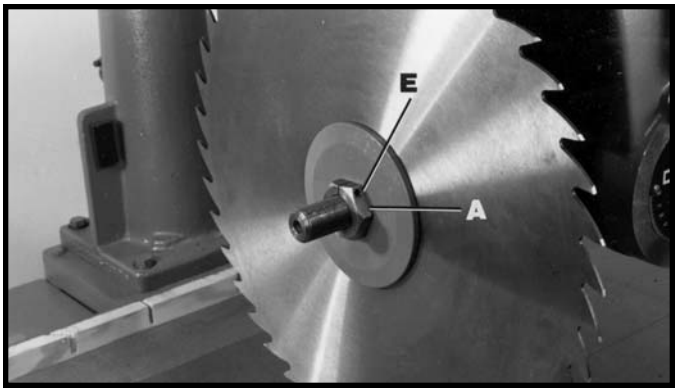

Fig. 24

2. Install blade on the saw arbor with teeth of blade pointing downward when viewed from front of saw, as shown in Fig. 23. Place the recessed end of blade flange (B) Fig. 23, against the blade, and thread the arbor nut (A) onto the arbor.

3. IMPORTANT: To prevent arbor nut from spinning when blade stops, proceed as follows:

Place the 1/16" wrench (C) Fig. 23, on flats of arbor and firmly tighten arbor nut (A), with the 1-5/8" box end spanner wrench (D), (left handed thread). Firmly tighten set screw (E).

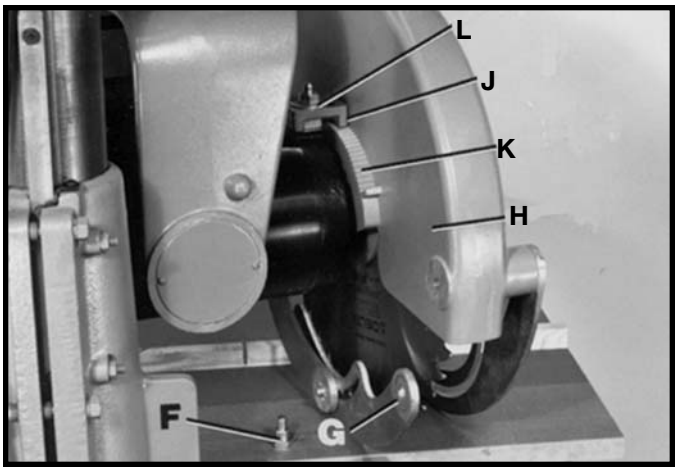

Fig. 25

4. Remove screw (F) Fig. 25, that attaches inside leaf guard (G) to rear of blade guard (H).

5. Assemble blade guard (H) Fig. 25, to motor housing, as shown. Position bracket (J) over motor housing and blade guard flange (K) and loosely fasten 1/2-13 hex nut (L) with wrench supplied.

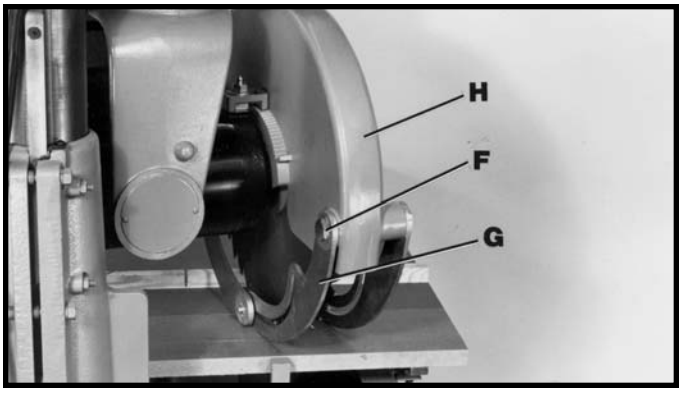

Fig. 26

6. Place leaf guard (G) Fig. 26, in place on blade guard (H) and fasten with special shoulder bolt (F) as shown.

7. Assemble anti-kickback rod (M) Fig 27, to blade guard (H), as shown, and fasten in place with thumb screw (N). **NOTE:** It will be necessary to tilt the blade guard (H) to the rear in order to assemble anti-kickback rod (M). Tighten nut (L) Fig. 25.

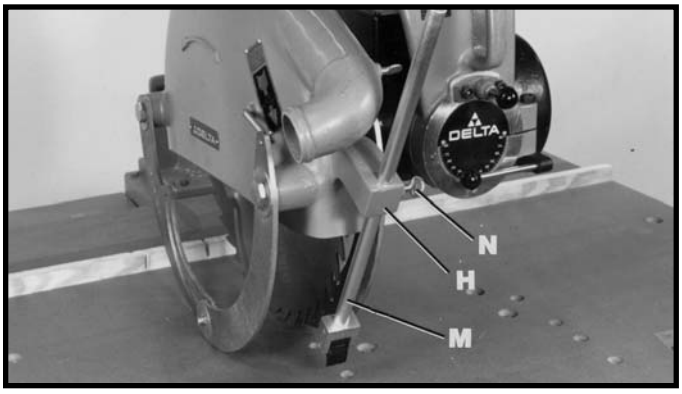

Fig. 27

CUTTERHEAD RETURN SPRING

1. **DISCONNECT MACHINE FROM POWER SOURCE.**

2. Remove fence from the table and return the cuttinghead assembly to rear of track arm. Rotate track arm 90 degrees to the right.

3. Remove left screw (B) Fig. 28, from yoke assembly.

4. Assemble reel (C) Fig. 29, to yoke assembly (D) and fasten with screw (B), which was removed in **STEP 3**.

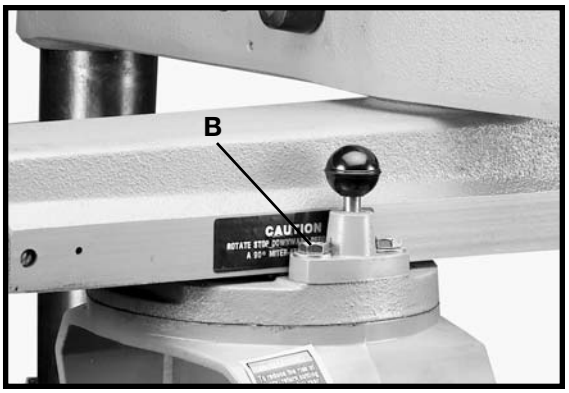

Fig. 28

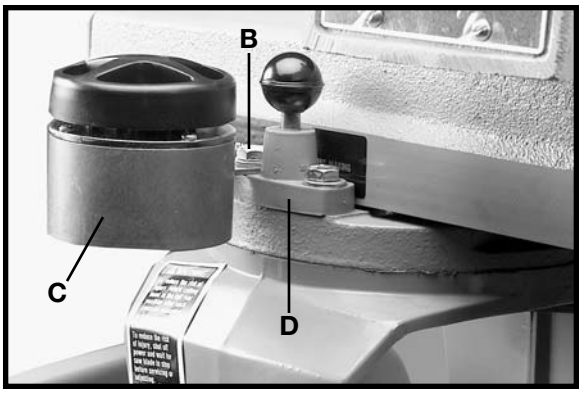

Fig. 29

5. Attach eyelet (H) Fig. 30, of cable assembly (C) to "S" bracket (E) as shown.

6. **NOTE:** To prevent premature wear of return reel cable, position the return reel so that the cable does not rub against the wall of the return reel.

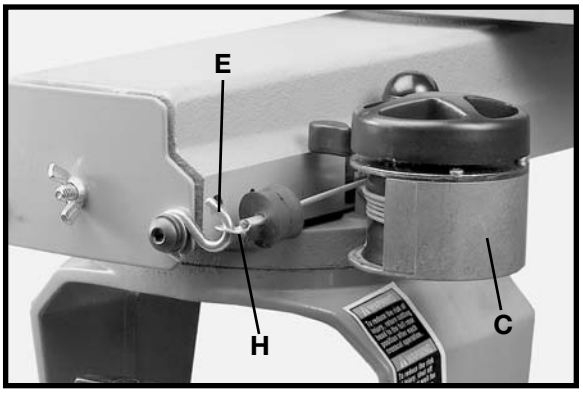

Fig. 30

OPERATING ADJUSTMENTS

Every Delta Radial Arm Saw is thoroughly tested, inspected and accurately aligned before leaving the factory and when delivered is ready for operation after it is assembled. However, regardless of the care with which this or any piece of fine machinery is manufactured, inspected and shipped, it is possible that rough handling in shipment, or wear over a period of time, may make minor adjustments necessary.

.

CAUTION: ALWAYS DISCONNECT MACHINE FROM POWER SOURCE BEFORE MAKING ANY ADJUSTMENTS.

TAKING SIDE MOTION OUT OF OVER-ARM

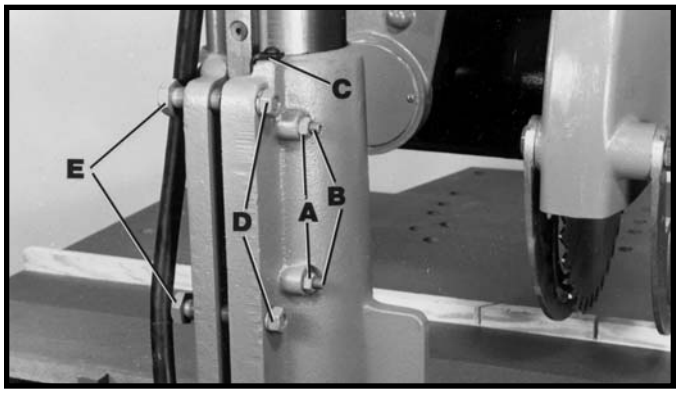

Fig. 31

If side motion develops in over-arm, it can be corrected as follows:

1. **DISCONNECT MACHINE FROM POWER SOURCE.**
2. Loosen hex nuts (A) and gib adjusting screws (B) and (C) Fig. 31.
3. Loosen nuts (D) Fig. 31, and adjust bolts (E), so that base wraps around column securely. If column is tight in base, turn bolts (E) clockwise to loosen. **IMPORTANT:** Turning bolts (E) clockwise will open the base jaws, while turning bolts (E) counterclockwise and tightening nuts (D) will close the base jaws. Check elevation by turning crank handle, making sure the column moves up and down without binding.
4. Tighten screws (B) Fig. 31, against the column gib until all side motion disappears in over-arm.

5. Securely lock hex nuts (A) while holding screws (B) and tighten screw (C).

TIGHTENING YOKE AGAINST BEARING CARRIAGE

After extended use "play" may develop between yoke (C) Fig. 32, and bearing carriage (B). To reduce "play" proceed as follows:

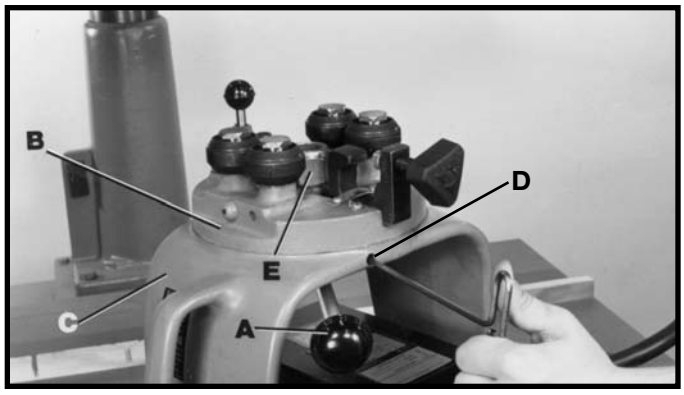

Fig. 32

1. **DISCONNECT MACHINE FROM POWER SOURCE.**

2. Remove guard and saw blade.

3. Remove end plate and cross cut stop from track-arm.

4. Remove yoke assembly from track-arm and place yoke assembly (C) Fig. 32, on saw table.

5. Pull yoke clamp handle (A) to the position shown in Fig. 32, to loosen, and loosen set screw (D) one turn only.

6. Turn nut (E) Fig. 32, clockwise until "play" between the yoke (C) and bearing carriage (B) is removed. Then tighten set screw (D),Fig. 32

7. Tighten yoke clamp handle (A) Fig. 32, by moving it forward, and reassemble yoke (C) assembly to track-arm.

ADJUSTING BALL BEARINGS AGAINST TRACK RODS

The carriage is mounted on four double row, sealed ball bearings, two on fixed shafts. To adjust the ball bearings against the track rods, proceed as follows:

1. **DISCONNECT MACHINE FROM POWER SOURCE.**

2. Remove end plate from track-arm, loosen clamp knob (A) Fig. 33, and move cuttinghead (B) to the front of the track-arm, as shown; then tighten clamp knob (A).

3. Loosen two set screws, one of which is shown at (C) Fig. 33, that lock both front and rear bearing eccentric shafts. The other screw is at the rear of the carriage.

4. Rotate yoke (B) Fig. 33, until hole in yoke is under either eccentric shaft (D).

5. Place roller head wrench (E) over hex nut (G) that locks shaft (D), as shown in Fig. 33, and loosen hex nut. Repeat this procedure at rear bearing.

6. Insert hex wrench (F) into eccentric shaft, as shown in Fig. 33, and turn until all "play" is removed between bearing (D) and track rods. Repeat this procedure for the rear bearing.

7. Tighten hex nuts with wrench (E) and lock set screws (C) with wrench, at both bearings, Fig. 33. Replace end cap on track-arm.

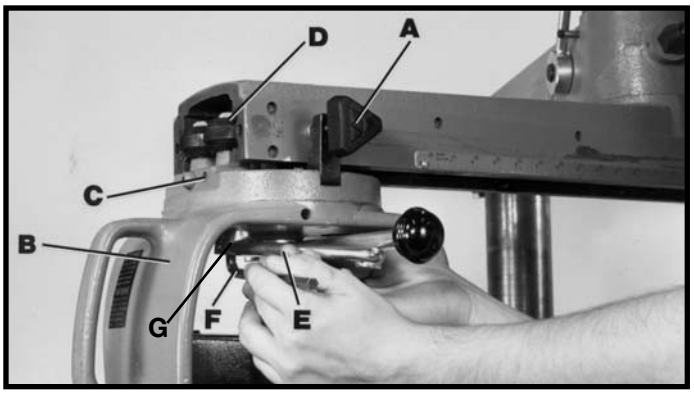

Fig. 33

ADJUSTING TRACK RODS

Each track rod (A, B, C, D) Fig. 34, can be adjusted individually to present a new bearing surface. Adjust the track rods one at a time as follows:

1. **DISCONNECT MACHINE FROM POWER SOURCE.**

2. Remove end cap (E) Fig. 35, cross-cut stop (F) and cutterhead assembly (G), from the track-arm as shown in Fig. 35.

3. Loosen series of top screws (H) Fig. 35, just enough to release holding action on the top left track rod (A) Fig. 34. Insert screw driver into slotted end of track rod (A) Fig. 34, and turn slightly right or left. Retighten all top screws (H) Fig. 35.

4. Bottom left track rod (B) Fig. 34, is adjusted in the same manner by loosening series of bottom screws (J) Fig. 35.

5. Adjust the right side track rods (C & D) Fig. 34, in the same manner. **NOTE:** When adjusting bottom right track rod (D) the rip scale must first be removed.

6. Reassemble the cutterhead assembly.
NOTE: After adjusting the track rods, check to see if the blade is square to the table top.

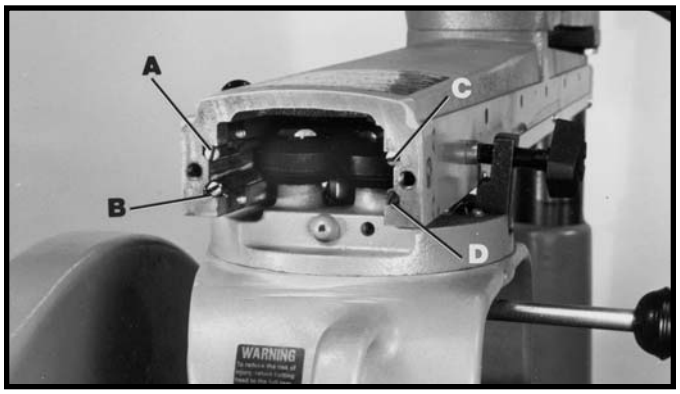

Fig. 34

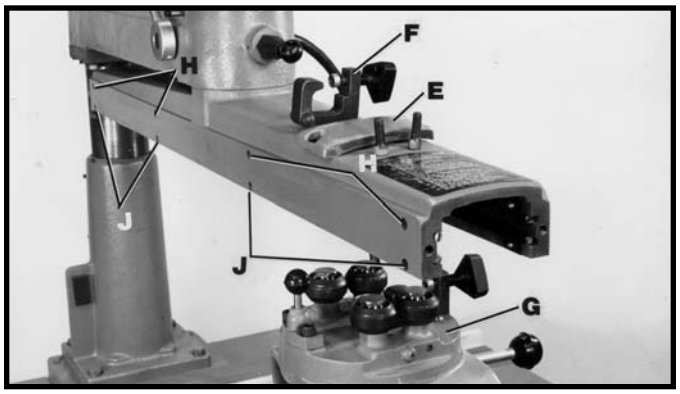

Fig. 35

ADJUSTING BLADE SQUARE WITH TABLE TOP

1. **DISCONNECT MACHINE FROM POWER SOURCE.**

2. Remove blade guard and place saw blade in cut-off position over fixed portion of table.

3. Place a square (A) Fig. 36, against saw blade. Be sure square is on the table surface, and between the gullets of the teeth, not against the saw teeth.

4. Loosen bevel clamp handle (B) Fig. 36, and loosen two screws (C).

5. Tilt the motor assembly (D) Fig. 36, until square is flush against saw blade and tighten bevel clamp handle (B) Fig. 36, to hold position. Then tighten two screws (C).

6. If the above adjustment is not sufficient, remove scale (E) Fig. 37, and loosen the two socket head screws (F) located on each side of the center pivot screw. Rotate motor for approximate adjustment and retighten the two socket head screws (F).

7. Replace scale plate (E) Fig. 37, and repeat **STEPS 4** and **5** for final adjustment.

8. Replace the guard.

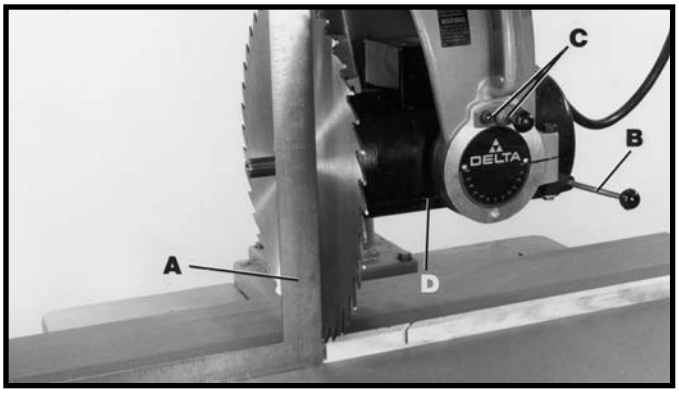

Fig. 36

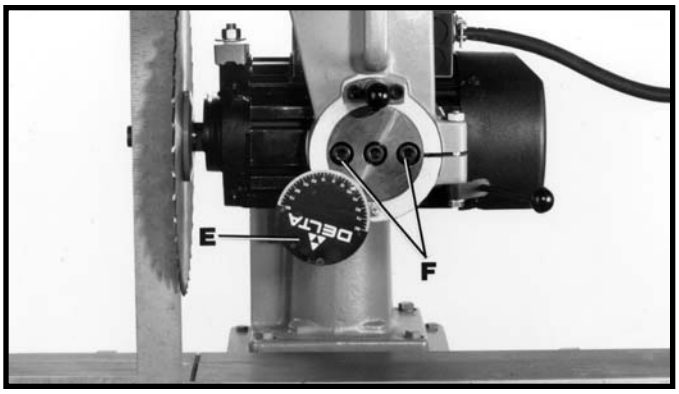

Fig. 37

ADJUSTING BEVEL CLAMP HANDLE

If the bevel clamp handle (A) Fig. 38, does not securely lock the motor when the handle is in the locked position, as shown, an adjustment can be made as follows:

1. **DISCONNECT MACHINE FROM POWER SOURCE.**

2. Place motor (B) Fig. 38, in a bevel cutting position between positive stops, as shown, and place bevel clamp handle (A) in the locked position, as shown.

3. Loosen nut (C) Fig. 38, and tighten bolt (D) until motor is locked. **CAUTION: DO NOT OVER TIGHTEN BOLT (D).**

4. While holding bolt (D) Fig. 38, tighten lock nut (C).

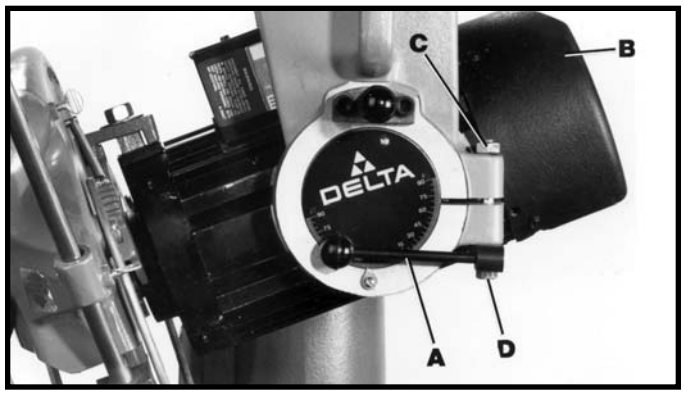

Fig. 38

ADJUSTING TRACK-ARM CLAMP HANDLE

When the track-arm clamp handle (A) Fig. 39, has to be moved beyond the position shown to clamp the track-arm, an adjustment can be made as follows:

1. **DISCONNECT MACHINE FROM POWER SOURCE.**
2. Move clamp handle (A) Fig. 39, to the rear as far as it will go.
3. Loosen set screw (B) Fig. 39, remove clamp handle (A) and reposition handle (A) on stud. Move handle to the rear until track-arm is completely locked. Then tighten set screw (B).

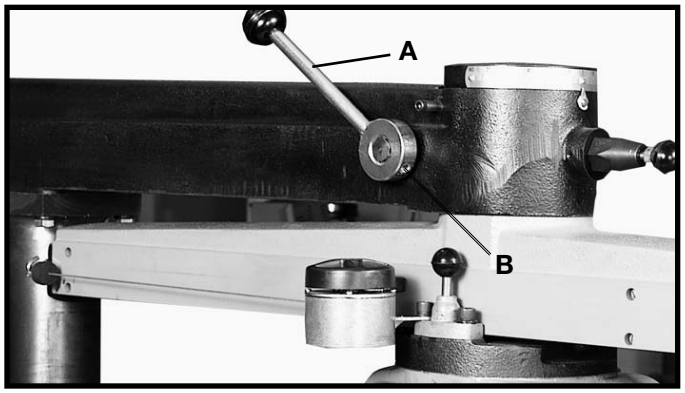

Fig. 39

ADJUSTING SAW TRAVEL SQUARE WITH FENCE

Your radial saw is equipped with exclusive "Micro-Set" Miter Stops. This unique feature makes it possible to produce accurate miter cuts and perfectly square cross-cuts at all times by individual adjustment of the three stop positions. These stops are accurately adjusted at the factory; however, adjustments can be made if necessary.

Once the "Micro-Set" stops are set, you can be assured of quick, positive settings at the three positions.

Before determining if the "Micro-Set" stops require adjustment, check saw travel for squareness with table fence. To do accurate work, saw travel must be 90 degrees to the fence. Check and adjust as follows:

1. **DISCONNECT MACHINE FROM POWER SOURCE.**

2. Place a square (A) Fig. 40, against fence (B), as shown, and lower cuttinghead (C) so that saw blade just clears table top.

3. Pull cuttinghead (C) Fig. 40, along square (A). If saw blade does not travel parallel to the square, the following adjustment is necessary.

4. Remove cover plate (D) Fig. 41.

5. Locate center cap screw (E) Fig. 41, inside pivot column and loosen slightly. Tap center cap screw (E) sharply with a block of wood or insert a thin wooden wedge inside the column to loosen the tapered plug (F) Fig. 41, that is attached to the cap screw (E). It is very important that the tapered plug (F) is loosened before any further adjustment is made.

6. Loosen clamp handle (G) Fig. 40.

7. Using wrench on hex nut (H) Fig. 40, turn slightly to one side. **CAUTION:** Do not attempt to rotate completely. Notice that the entire track also moves.

8. When saw blade tracks evenly against steel square, tighten clamp handle (G) Fig. 40, and center cap screw (E) Fig. 41.

9. Check pointer and adjust to 0 degrees, if necessary.

10. Replace cover plate (D) Fig. 41.

11. Right and left miter positions can be independently adjusted using the same procedure as above. If square is not available, trial cuts can be made to determine if adjustment is necessary.

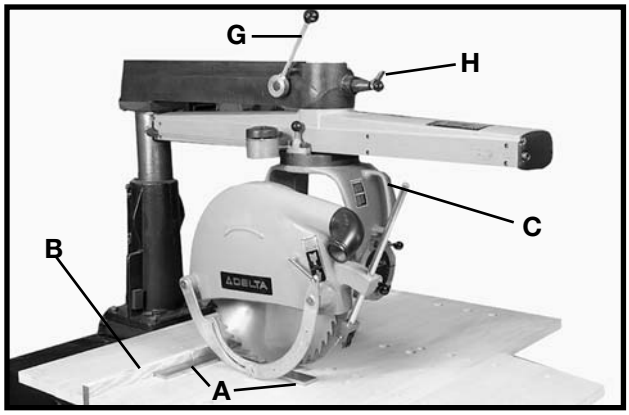

Fig. 40

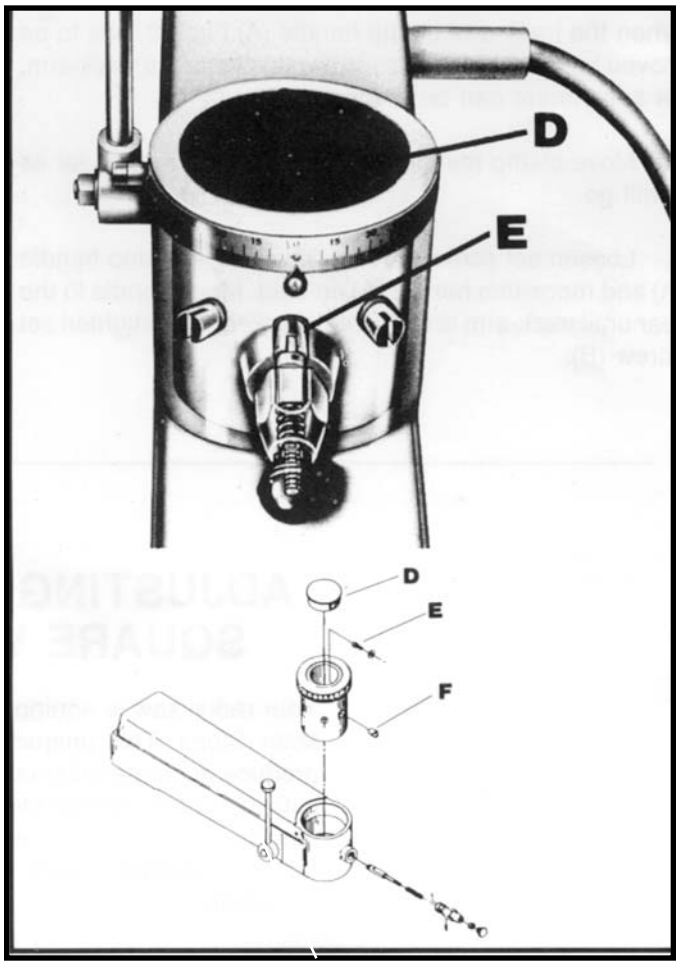

Fig. 41

REMOVING "HEELING" IN SAW CUT

Even though the cuttinghead travel may be perfectly aligned at 90 degrees to the fence, the blade itself may not be 90 degrees or square with the fence, as shown in Fig. 42. This condition is known as "heeling."

To check and adjust, proceed as follows:

1. Cross-cut a board and see on which side of the cut board saw teeth marks appear.

2. **DISCONNECT MACHINE FROM POWER SOURCE.**

3. If saw teeth marks appear on the right side, the back end of the saw blade must be shifted toward left side.

4. Loosen yoke clamp handle (A) Fig. 43. Then loosen both screws (B) Fig. 44, and turn yoke (C) **COUNTER-CLOCKWISE.** If saw teeth marks appear on left side of board, turn yoke (C) **CLOCKWISE.**

5. Tighten yoke clamp handle (A) Fig. 43, to hold position and retighten screws (B) Fig. 44.

6. Make another test cut and repeat steps 1 through 5 until “heeling” is eliminated.

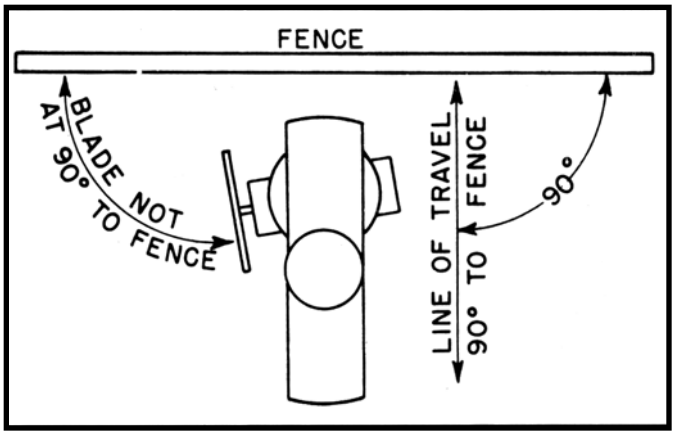

Fig. 42

Fig. 43

Fig. 44

ADJUSTABLE CROSS-CUT STOP

An adjustable cross-cut stop (A) Fig. 45, is provided to prevent unnecessary travel of the cuttinghead on the track-arm. It is especially useful when performing repetitive operations. Clamp the stop to the side of the track-arm at a position which will stop the cuttinghead travel as soon as the blade cuts through the workpiece.

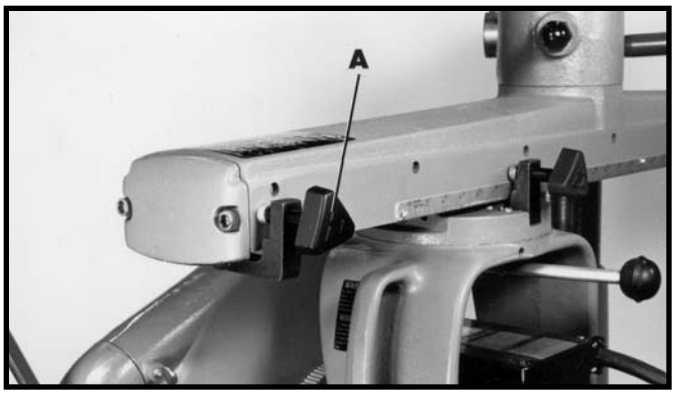

Fig. 45

ADJUSTING BLADE GUARD

On all ripping and plowing operations, the back part of the blade guard is lowered so that it just clears the material. This will prevent the material from being lifted off the table. Also, lower the kickback rod (A) Fig. 46, so that the kickback fingers are 1/8" below surface of material. The kickback fingers will then come into contact with the material preventing "kickback." Adjust dust elbow (B) Fig. 46, to direct sawdust to rear of machine.

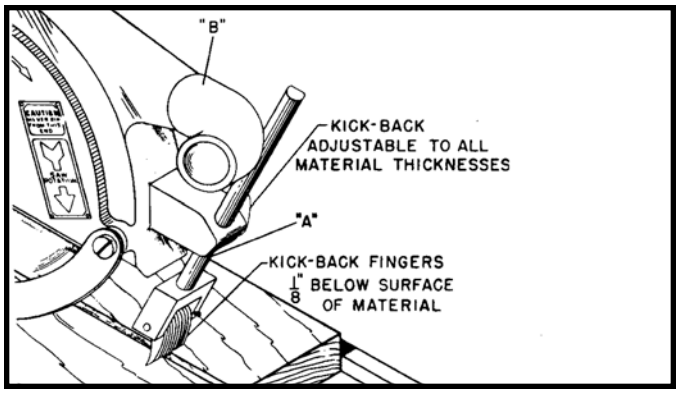

Fig. 46

CHECKING AND ADJUSTING AUTOMATIC BRAKE

After a period of extended use, the automatic brake should be checked and adjusted if necessary to maintain proper blade braking action.

NOTE: The blade stopping time should be a maximum of one second per one inch of the blade diameter.

To check the setting on the automatic brake:

1. **DISCONNECT MACHINE FROM POWER SOURCE.**

2. Remove four screws, three of which are shown at (A) Fig. 47, and remove fan cover (B) from the motor.

3. The air gap (D) Fig. 48, must be maintained between .008" and .012". Use a feeler gauge (C) to measure the gap.

4. If an adjustment is necessary, turn lock nut (F) Fig. 48, until a proper gap setting of .010" is attained.

5. Replace fan cover that was removed in Step 2.

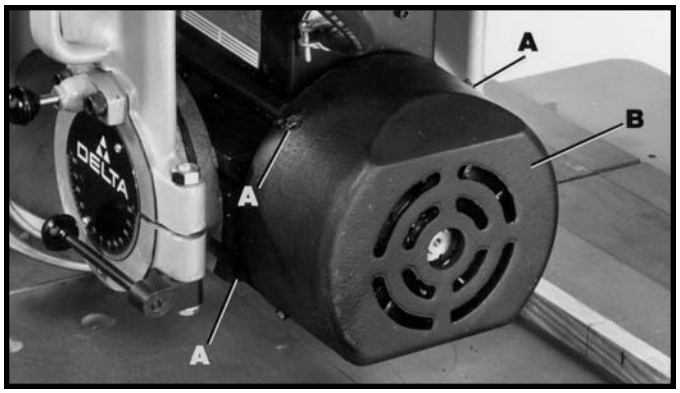

Fig. 47

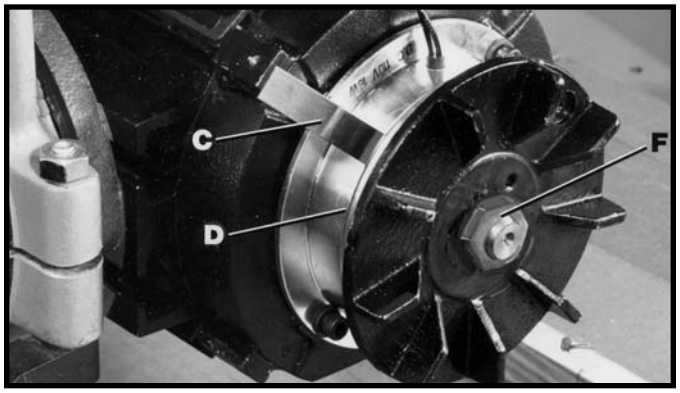

Fig. 48

LOCKING SWITCH IN THE "OFF" POSITION

IMPORTANT: When the tool is not in use, the switch should be locked in the "OFF" position using a padlock (A) Fig. 48A, with a 3/16" diameter shackle to prevent unauthorized use.

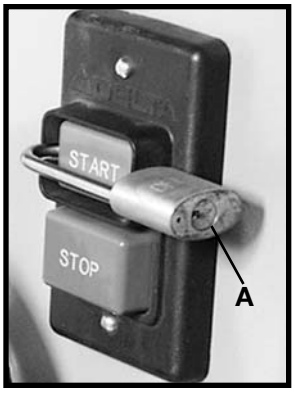

Fig. 48A

ADJUSTING TENSION ON CUTTINGHEAD RETURN ASSEMBLY

The cuttinghead return assembly is properly tensioned when there is just enough cable tension to return the cuttinghead (A) Fig. 49, without excessive force, to the rear of the track arm (B) after completion of the cut. If an adjustment is necessary:

1. **DISCONNECT MACHINE FROM POWER SOURCE.**

2. To **INCREASE** cable tension, turn adjustment dial (C), Fig. 49, clockwise.

3. To **DECREASE** cable tension, pull back on cable tension release knob (D) Fig. 50, until the desired tension is achieved.

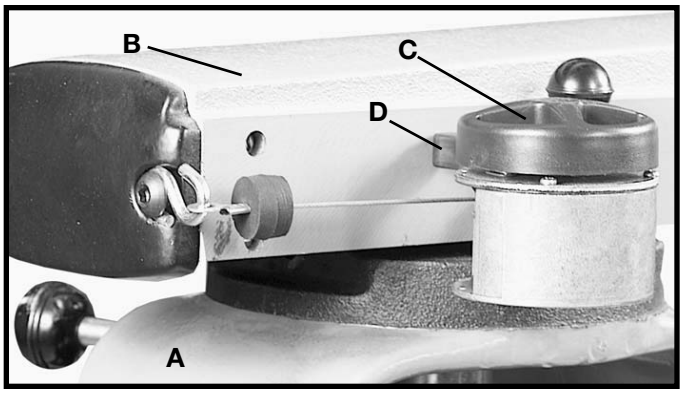

Fig. 49

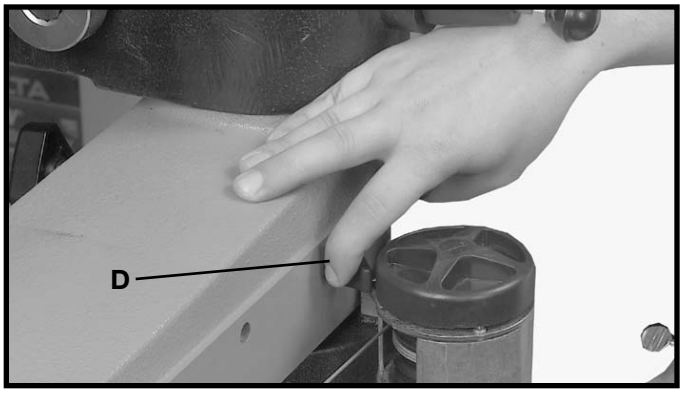

Fig. 50

WRENCH STORAGE BRACKETS

The Radial Arm Saw is supplied with three brackets (A) Fig. 51, for storing wrenches when not in use.

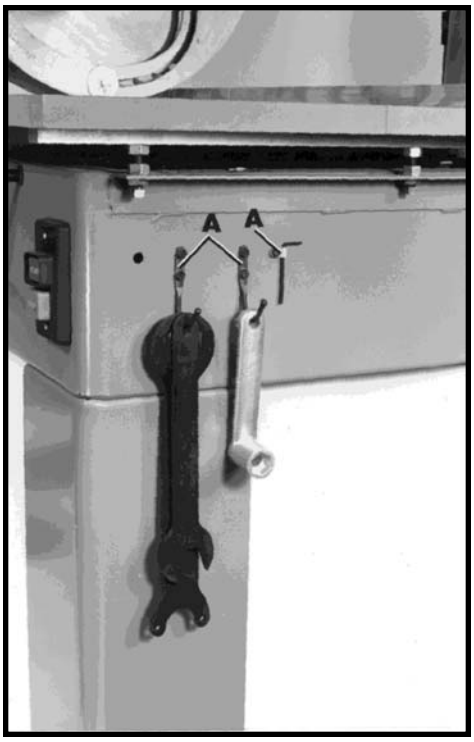

Fig. 51

AUXILIARY TABLE BOARD FACING

To prevent repeated cutting into the table surface which will eventually cause the table to sag, an auxiliary table board facing can be cut and fitted to the table. It can be made from 1/4″ plywood or particle board and should be cut to a size that will exactly cover all of the table boards in front of the fence. The auxiliary table board facing should be placed flat on the table and butted against the table fence. Fasten it to the table with a small brad or finish nail in each corner.

The life of the table boards will be greatly extended by the use of an auxiliary facing.The auxiliary facing can be replaced as often as is necessary to protect the table.

USING A TABLE EXTENSION

When a table extension more than 24 inches long is attached to the saw, a sturdy outrigger support should be provided or the stand or bench must be secured to the floor.

OPERATIONS

CROSS-CUTTING

Cross-cutting consists of supporting the workpiece against the fence and pulling the saw blade through the material at right angles to it.

When cross-cutting, the track arm should be indexed at “0” and the track arm clamp handle tightened. The fence should be clamped between the table boards. The saw blade is to be to the left and behind the fence. The workpiece is placed on the table and butted against the fence. The saw blade should be clear of the fence and table when the machine is turned on. Then the saw blade is lowered until it lightly cuts into the table surface. The operator should position himself a little to the left of the machine for better visibility while cutting. Pull the saw blade through the work, just far enough to cut it off, and return the saw blade to its starting position. Turn tool off. and wait for the blade to stop before touching the cut-off piece. The operator should always be sure to return the cutter-head carriage to the full rear position after each cross-cut operation.

NOTE: When cross-cutting material more than 1″ thick, the fence must be positioned immediately behind the fixed front table board.

Fig. 52

CROSS-CUT STOP

A block of wood placed at (B) Fig. 53 clamped to the track arm with a small “C” clamp will prevent unnecessary travel (T) of the cutting-head on the track arm. This is especially useful when performing repetitive operations. Clamp the block of wood to the right side of the track arm at a position which will stop the cutting-head travel as soon as the saw blade cuts through the workpiece.

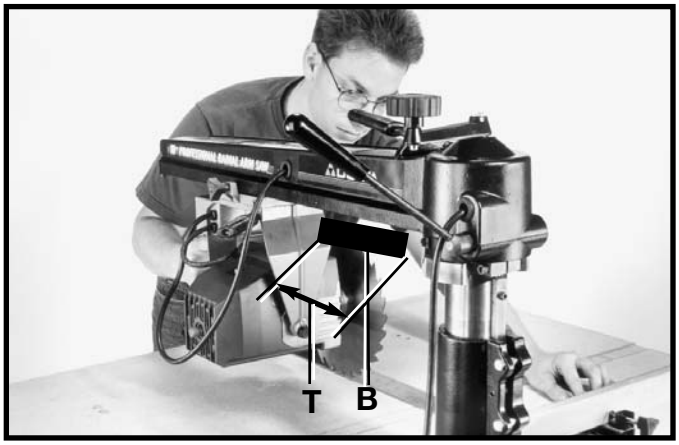

Fig. 53

MITER CUTTING

Miter cutting is similar to cross-cutting except the workpiece is cut off at an angle (up to 45 degrees right or left) rather than being cut off square. The settings and operation are performed in the same manner as cross-cutting except that the track arm is first positioned to the desired angle on the miter scale before it is clamped in place. The operator should position the hand holding the workpiece on the opposite side to the direction of the miter so the blade is pulled through the workpiece and away from the hand. Fig. 54, shows a typical miter cutting operation on the radial saw.

Fig. 54

COMPOUND MITER CUTTING

Compound miter cutting is performed in the same manner as miter cutting except the saw blade is also tilted to cut a bevel. The settings and operation are similar to miter cutting except that the blade is first tilted to the desired angle on the bevel scale before it is clamped in place. Fig. 55, shows a compound miter cutting operation on the radial saw.

Fig. 55

RIPPING

IMPORTANT: In certain applications it may be necessary to use two push sticks, and/or featherboards. Also, if a push stick or other feeding device is necessary to assist in the feeding of material, make certain it is conveniently located so it may be reached easily without having to stretch or reach near the blade.

Ripping involves making a lengthwise cut through a board along the grain. When ripping, the track arm is clamped at "0" on the miter scale. The yoke is then positioned and clamped so that the blade is parallel to the fence. When feeding the material, one edge rides against the fence while the flat side of the board rests on the table. The guard should be lowered on the in-feed side until it almost touches the workpiece, as shown in Figs. 56 and 57, to act as a holddown. The splitter and anti-kickback fingers (A) Fig. 56, should be adjusted as described under the section **"ADJUSTING SPLITTER AND ANTI-KICKBACK FINGERS"** in this manual. The operators hands should always be well away from and to the side of the blade. When ripping narrow work, always use a push stick as shown in Fig. 58, to push the work between the fence and blade. The workpiece must have one straight edge to follow the fence. If board is bowed, place hollow side down. The cutting-head clamp knob should be securely tightened for all ripping operations.

⚠ WARNING:THE MATERIAL MUST NEVER BE FED INTO THE OUTFEED END OF THE BLADE GUARD.

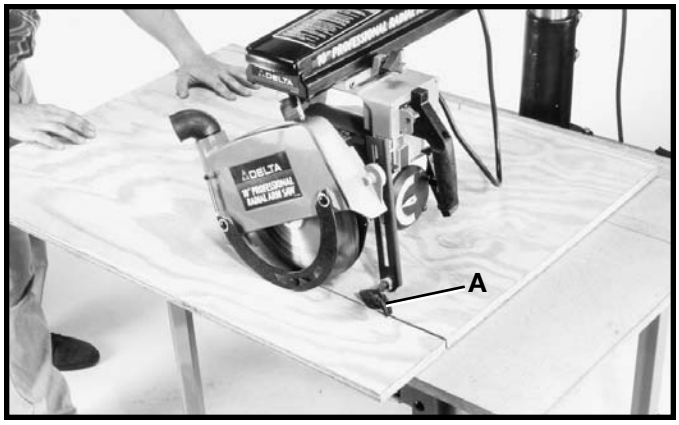

Fig. 56

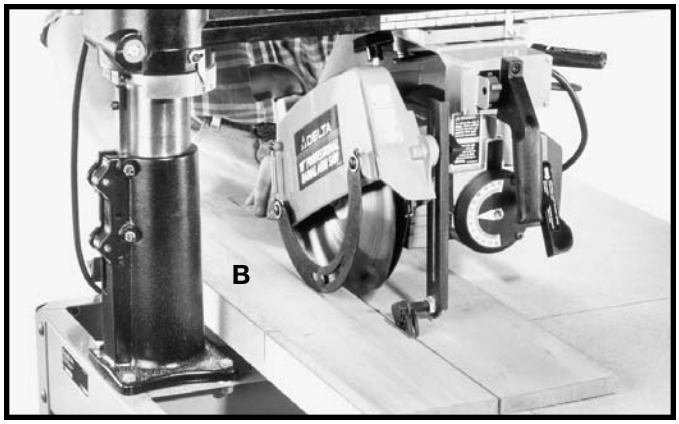

Fig. 57

OUT-RIPPING

Out-ripping involves all of the general conditions stated above. The yoke is clamped at right angle to the track arm with the blade guard facing the front of the machine. The cutting-head is positioned on the out-rip scale to the desired setting and clamped in position. The workpiece is fed from the left side of the saw. Fig. 56, shows a typical out-ripping operation on the radial saw.

IN-RIPPING

In-ripping involves all of the general conditions stated under **RIPPING**. The yoke is clamped at right angle to the track arm with the blade guard facing the rear of the machine. The cutting-head is positioned on the in-rip scale to the desired setting and clamped in position. The workpiece is fed from the right side of the saw. Fig. 57, shows a typical in-ripping operation on the radial saw.

⚠ WARNING: WHEN RIPPING WORK LESS THAN FOUR INCHES WIDE, A PUSH STICK SHOULD BE USED TO COMPLETE THE FEED (SEE FIG. 58)

CONSTRUCTING A PUSH STICK

When ripping work less than 4 inches wide, a push stick should be used to complete the feed and could easily be made from scrap material by following the pattern shown in Fig. 58.

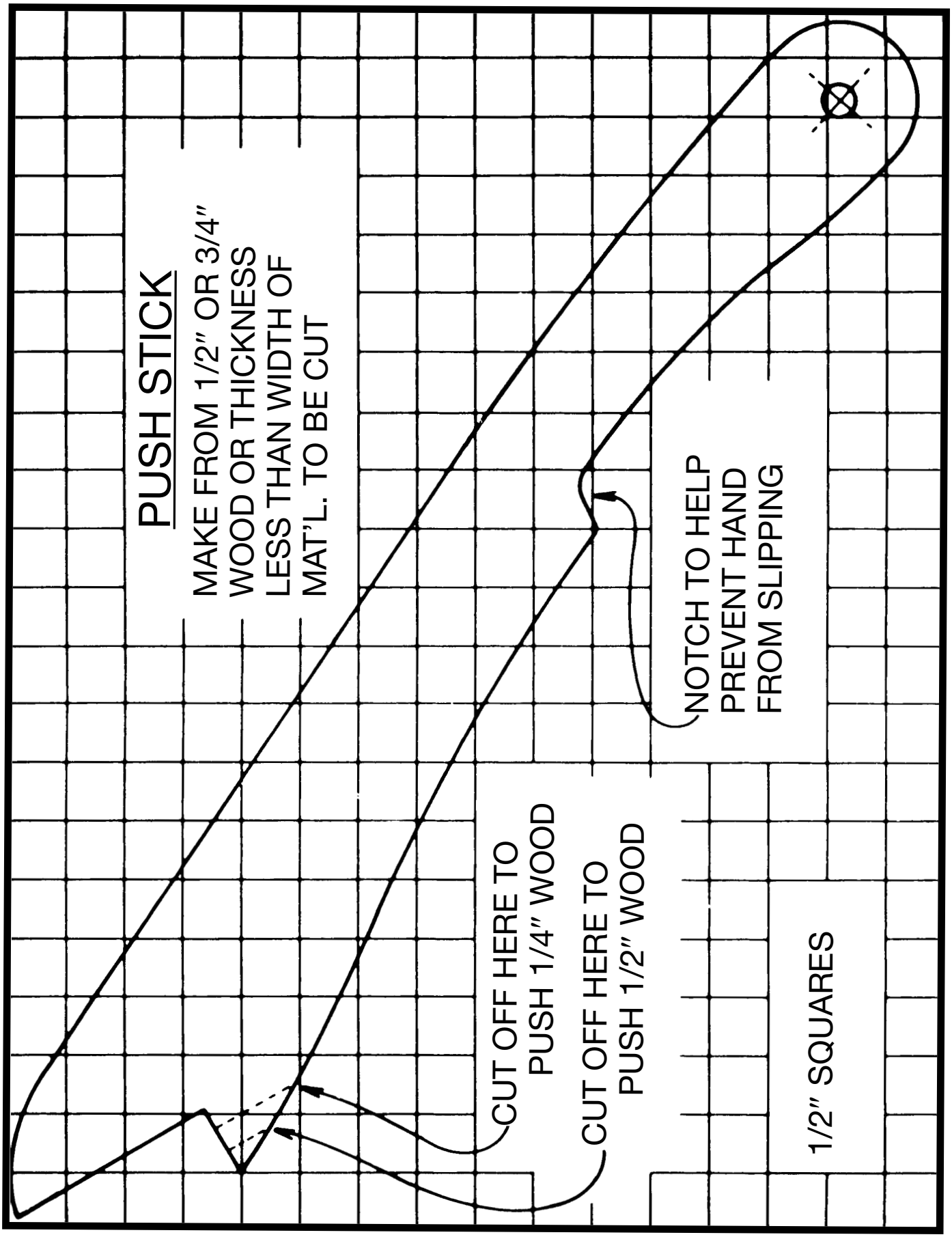

Fig. 58

ACCESSORIES

A complete line of accessories is available from your Delta Supplier, Porter-Cable • Delta Factory Service Centers, and Delta Authorized Service Stations. Please visit our Web Site **www.deltamachinery.com** for a catalog or for the name of your nearest supplier.

⚠ **WARNING:** Since accessories other than those offered by Delta have not been tested with this product, use of such accessories could be hazardous. For safest operation, only Delta recommended accessories should be used with this product.

PARTS, SERVICE OR WARRANTY ASSISTANCE

All Delta Machines and accessories are manufactured to high quality standards and are serviced by a network of Porter-Cable • Delta Factory Service Centers and Delta Authorized Service Stations. To obtain additional information regarding your Delta quality product or to obtain parts, service, warranty assistance, or the location of the nearest service outlet, please call 1-800-223-7278 (In Canada call 1-800-463-3582).

Two Year Limited Warranty

Delta will repair or replace, at its expense and at its option, any Delta machine, machine part, or machine accessory which in normal use has proven to be defective in workmanship or material, provided that the customer returns the product prepaid to a Delta factory service center or authorized service station with proof of purchase of the product within two years and provides Delta with reasonable opportunity to verify the alleged defect by inspection. Delta may require that electric motors be returned prepaid to a motor manufacturer's authorized station for inspection and repair or replacement. Delta will not be responsible for any asserted defect which has resulted from normal wear, misuse, abuse or repair or alteration made or specifically authorized by anyone other than an authorized Delta service facility or representative. Under no circumstances will Delta be liable for incidental or consequential damages resulting from defective products. This warranty is Delta's sole warranty and sets forth the customer's exclusive remedy, with respect to defective products; all other warranties, express or implied, whether of merchantability, fitness for purpose, or otherwise, are expressly disclaimed by Delta.

Printed in U.S.A.

PORTER-CABLE • DELTA SERVICE CENTERS
(CENTROS DE SERVICIO DE PORTER-CABLE • DELTA)

Parts and Repair Service for Porter-Cable • Delta Machinery are Available at These Locations
(Obtenga Refaccion de Partes o Servicio para su Herramienta en los Siguientes Centros de Porter-Cable • Delta)

ARIZONA
Tempe 85282 (Phoenix)
2400 West Southern Avenue
Suite 105
Phone: (602) 437-1200
Fax: (602) 437-2200

CALIFORNIA
Ontario 91761 (Los Angeles)
3949A East Guasti Road
Phone: (909) 390-5555
Fax: (909) 390-5554

San Leandro 94577 (Oakland)
3039 Teagarden Street
Phone: (510) 357-9762
Fax: (510) 357-7939

COLORADO
Arvada 80003 (Denver)
8175 Sheridan Blvd., Unit S
Phone: (303) 487-1809
Fax: (303) 487-1868

FLORIDA
Davie 33314 (Miami)
4343 South State Rd. 7 (441)
Unit #107
Phone: (954) 321-6635
Fax: (954) 321-6638

Tampa 33609
4538 W. Kennedy Boulevard
Phone: (813) 877-9585
Fax: (813) 289-7948

GEORGIA
Forest Park 30297 (Atlanta)
5442 Frontage Road,
Suite 112
Phone: (404) 608-0006
Fax: (404) 608-1123

ILLINOIS
Addison 60101 (Chicago)
400 South Rohlwing Rd.
Phone: (630) 424-8805
Fax: (630) 424-8895

Woodridge 60517 (Chicago)
2033 West 75th Street
Phone: (630) 910-9200
Fax: (630) 910-0360

MARYLAND
Elkridge 21075 (Baltimore)
7397-102 Washington Blvd.
Phone: (410) 799-9394
Fax: (410) 799-9398

MASSACHUSETTS
Braintree 02185 (Boston)
719 Granite Street
Phone: (781) 848-9810
Fax: (781) 848-6759

Franklin 02038 (Boston)
Franklin Industrial Park
101E Constitution Blvd.
Phone: (508) 520-8802
Fax: (508) 528-8089

MICHIGAN
Madison Heights 48071 (Detroit)
30475 Stephenson Highway
Phone: (248) 597-5000
Fax: (248) 597-5004

MINNESOTA
Minneapolis 55429
5522 Lakeland Avenue North
Phone: (763) 561-9080
Fax: (763) 561-0653

MISSOURI
North Kansas City 64116
1141 Swift Avenue
P.O. Box 12393
Phone: (816) 221-2070
Fax: (816) 221-2897

St. Louis 63119
7574 Watson Road
Phone: (314) 968-8950
Fax: (314) 968-2790

NEW YORK
Flushing 11365-1595 (N.Y.C.)
175-25 Horace Harding Expwy.
Phone: (718) 225-2040
Fax: (718) 423-9619

NORTH CAROLINA
Charlotte 28270
9129 Monroe Road, Suite 115
Phone: (704) 841-1176
Fax: (704) 708-4625

OHIO
Columbus 43214
4560 Indianola Avenue
Phone: (614) 263-0929
Fax: (614) 263-1238

Cleveland 44125
8001 Sweet Valley Drive
Unit #19
Phone: (216) 447-9030
Fax: (216) 447-3097

OREGON
Portland 97230
4916 NE 122 nd Ave.
Phone: (503) 252-0107
Fax: (503) 252-2123

PENNSYLVANIA
Willow Grove 19090
520 North York Road
Phone: (215) 658-1430
Fax: (215) 658-1433

TEXAS
Carrollton 75006 (Dallas)
1300 Interstate 35 N, Suite 112
Phone: (972) 446-2996
Fax: (972) 446-8157

Houston 77055
West 10 Business Center
1008 Wirt Road, Suite 120
Phone: (713) 682-0334
Fax: (713) 682-4867

WASHINGTON
Auburn 98001(Seattle)
3320 West Valley HWY, North
Building D, Suite 111
Phone: (253) 333-8353
Fax: (253) 333-9613

Authorized Service Stations are located in many large cities. Telephone **800-438-2486** or **731-541-6042** for assistance locating one. Parts and accessories for Porter-Cable•Delta products should be obtained by contacting any Porter-Cable•Delta Distributor, Authorized Service Center, or Porter-Cable•Delta Factory Service Center. If you do not have access to any of these, call **800-223-7278** and you will be directed to the nearest Porter-Cable•Delta Factory Service Center. Las Estaciones de Servicio Autorizadas están ubicadas en muchas grandes ciudades. Llame al **800-438-2486** ó al **731-541-6042** para obtener asistencia a fin de localizar una. Las piezas y los accesorios para los productos Porter-Cable•Delta deben obtenerse poniéndose en contacto con cualquier distribuidor Porter-Cable•Delta, Centro de Servicio Autorizado o Centro de Servicio de Fábrica Porter-Cable•Delta. Si no tiene acceso a ninguna de estas opciones, llame al **800-223-7278** y le dirigirán al Centro de Servicio de Fábrica Porter-Cable•Delta más cercano.

CANADIAN PORTER-CABLE • DELTA SERVICE CENTERS

ALBERTA
Bay 6, 2520-23rd St. N.E.
Calgary, Alberta
T2E 8L2
Phone: (403) 735-6166
Fax: (403) 735-6144

BRITISH COLUMBIA
8520 Baxter Place
Burnaby, B.C.
V5A 4T8
Phone: (604) 420-0102
Fax: (604) 420-3522

MANITOBA
1699 Dublin Avenue
Winnipeg, Manitoba
R3H 0H2
Phone: (204) 633-9259
Fax: (204) 632-1976

ONTARIO
505 Southgate Drive
Guelph, Ontario
N1H 6M7
Phone: (519) 836-2840
Fax: (519) 767-4131

QUÉBEC
1515 ave.
St-Jean Baptiste,
Québec, Québec
G2E 5E2
Phone: (418) 877-7112
Fax: (418) 877-7123

1447, Begin
St-Laurent, (Montréal),
Québec
H4R 1V8
Phone: (514) 336-8772
Fax: (514) 336-3505

Printed in U.S.A.